Claims:

1. A radiation applicator for applying electromagnetic radiation to tissue, comprising:

an axial central conductor adapted to be coupled to a source of electromagnetic radiation and defining an axis;

an elongate dielectric member, the dielectric member surrounding at least part of said central conductor along an axial length thereof;

a metal ferrule, the ferrule being attached to the dielectric member and surrounding a portion of the central conductor and extending parallel thereto along a length thereof.

2. The applicator of claim 1, wherein the ferrule and the dielectric member have respective elongate cooperating surfaces and wherein the ferrule and the dielectric member are fixed to each other with said cooperating surfaces in close abutment, thereby providing a rigid structure.

3. The applicator of claim 2, wherein the cooperating surfaces include respective radially-extending cooperating surfaces.

4. The applicator of claim 2 or 3, wherein the cooperating surfaces include respective annular cooperating surfaces.

5. The applicator of any of the preceding claims, further comprising:

a disc shaped tuning conductor, attached to the central conductor and in electrical contact therewith;

wherein the shape and dimensions of the tuning conductor, and the shape and dimensions of the dielectric member, are predetermined whereby a radiating dipole is formed, in use, for radiating electromagnetic energy in at least a radial direction from said dielectric member.

6. The applicator of any of the preceding claims, further comprising:

an elongate metal tube surrounding a portion of the central conductor spaced apart from the part surrounded by the dielectric member;

wherein the ferrule is fixedly attached on opposing respective sides thereof to the dielectric member and to the metal tube; and wherein the central conductor comprises the inner conductor of a cable extending within the metal tube, an elongate annular space being defined between the cable and the metal tube so as to permit the passage of cooling fluid to at least the ferrule.

7. The applicator of claim 6, wherein at least one set of holes is provided in the tube, each hole extending through the wall of the tube, thereby providing conduits for the flow of fluid between the annular space and the exterior of the applicator.

8. The applicator of claim 7, wherein the holes extend radially.

9. The applicator of claim 7 or 8, wherein 1 to 4 holes per set, and preferably 2 holes per set, are provided.

10. The applicator of any of claims 7 to 9, wherein the holes are diametrically opposed.

11. The applicator of any of claims 7 to 10, wherein two or more sets of holes are provided, and the sets of holes are spaced apart axially.

12. The applicator of any of claims 7 to 11, wherein the holes are 0.1 to 0.6 mm in diameter, and preferably 0.5 mm in diameter.

13. The applicator of any of claims 7 to 12, wherein the holes are disposed a minimum of 3 to 50 mm, and preferably 12 mm, from the end of the tube that abuts the ferrule.

14. The applicator of any of the preceding claims, wherein the dielectric member is formed with an end blade, whereby the blade has a dimension of elongation transverse to said axis.

15. The applicator of any of the preceding claims, wherein the external diameter of the diuelectric member, the ferrule and/or the metal tube, is less than 2.5 mm, and is preferably 2.4 mm.

16. A radiation application assembly, comprising:

the applicator of any of claims 6 to 13, or claim 14 or 15 when dependent on any of claims 6 to 13,

a fluid conduit connected to a source of cooling fluid via a pumping device; wherein the fluid conduit is also connected to the metal tube at a position thereon spaced apart from the end thereof that abuts the ferrule;

wherein the pumping device is operable, in use, to supply cooling fluid at a predetermined rate to the annular space via the fluid conduit.